

# 6/H-16 (vii) Syllabus-2017

2 0 2 5

( May-June )

ECONOMICS

( Honours )

( Statistics )

Marks : 75

Time : 3 hours

*The figures in the margin indicate full marks  
for the questions*

Answer **one** question from each Unit

## UNIT—I

1. (a) What do you mean by central tendency?  
Point out the requisites of a good  
measure of central tendency. 2+4=6
- (b) The mean wage paid to 500 employees  
of a factory was found to be 175. Later  
it was discovered that the wages of two  
employees were wrongly taken as  
280 and 155 instead of 180 and 165.  
Find the correct mean. 6
- (c) In a moderately asymmetrical  
distribution, the mean and mode are  
45.4 and 43.1, respectively. Find the  
value of median. 3

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2. (a) Calculate mean deviation from median for the following series. Also find its coefficient :  $6+2=8$

Marks	: 0-10	10-20	20-30	30-40	40-50
No. of students	: 5	8	15	16	6

- (b) From the following data, calculate Bowley's coefficient of skewness : 7
- |           |     |    |    |    |    |    |    |
|-----------|-----|----|----|----|----|----|----|
| Value     | : 6 | 12 | 18 | 24 | 30 | 36 | 42 |
| Frequency | : 4 | 7  | 9  | 18 | 15 | 10 | 7  |

UNIT—II

3. (a) The following data relate to invested capital and profit earned (in thousands of ₹) by a firm. Calculate the correlation coefficient and interpret the result :  $8+2=10$

Capital	: 10	20	30	40	50	60	70	80
Profit	: 2	4	8	10	12	14	20	28

- (b) Explain the difference between correlation and regression. 5
4. (a) From the following data, obtain the regression equation of X on Y. Estimate the value of X which corresponds to an average of Y = 10 :  $7+1=8$

X	: 5	8	7	6	4
Y	: 3	4	5	2	1

- (b) Show that the regression coefficient is invariant with the change of origin but not of scale. 7

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UNIT—III

5. (a) What is time series? Discuss the application of time series analysis in economics with suitable examples.  $2+4=6$

- (b) Fit a straight line trend by the method of least squares to the following data. Assuming that the same rate of change continues, what would be the predicted earnings for the year 2022?  $7+2=9$

Year	: 2012	2013	2014	2015	2016	2017	2018	2019
Earnings (in lakhs)	: 38	40	65	72	69	60	87	95

6. Discuss the various methods of curve fitting with suitable examples. 15

UNIT—IV

7. (a) What is index number? Describe the various measures of index number.  $2+5=7$

- (b) The following are the prices (in ₹) of commodities in 2012 and 2017. Calculate a price index based on price relatives using the arithmetic mean as well as geometric mean :  $4+4=8$

Year	Commodity					
	A	B	C	D	E	F
2012	45	60	20	50	85	120
2017	55	70	30	75	90	130

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8. From the following data, construct price index numbers using (a) Laspeyres' method, (b) Paasche's method and (c) Fisher's method :  $5+5+5=15$

Commodity	2010		2020	
	Price	Expenditure	Price	Expenditure
A	8	120	12	240
B	12	240	14	350
C	10	100	16	128
D	8	200	10	200
E	4	40	6	42

#### UNIT—V

9. (a) What is the classical definition of probability? State and prove the multiplication theorem of probability.  $2+5=7$
- (b) A bag contains 25 balls numbered from 1 to 25. One ball is drawn at random. Find the probability that the number of the drawn ball will be multiple of (i) 5 or 7 and (ii) 3 or 7.  $4+4=8$
10. (a) Show that the mean and variance of Poisson distribution are equal. 9
- (b) Write notes on any two of the following :  $3 \times 2 = 6$
- (i) Simple random sampling
  - (ii) Systematic sampling
  - (iii) Sampling error

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